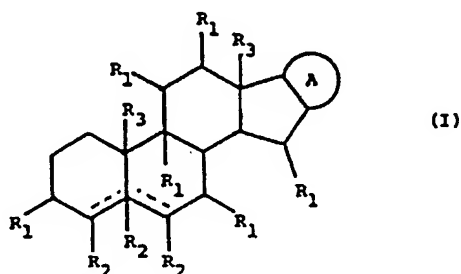


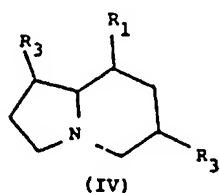
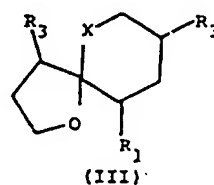
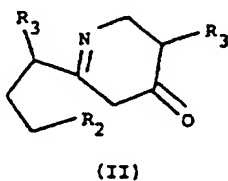
**The Claims Defining the Invention are as Follows**

1. Use of a glycoalkaloid composition containing at least one containing at least one Z Glycoalkaloid of formula I:

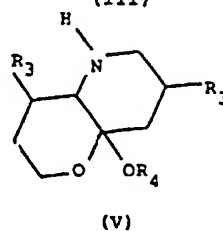


- 5 wherein: either one or both of the dotted lines represents a double bond, and the other a single bond, or both represent single bonds;

A: represents a radical selected from the following radicals of general formulae (II) to (V):



or



- 10 each of R<sup>1</sup> is a radical separately selected from the group consisting of hydrogen, amino, oxo and OR<sup>4</sup>;

each of R<sup>2</sup> is a radical separately selected from the group consisting of hydrogen, amino and OR<sup>4</sup>;

each of  $R^3$  is a radical separately selected from the group consisting of hydrogen, carbohydrate and a carbohydrate derivative;

"X" is a radical selected from the group comprising  $-CH_2-$ ,  $-O-$  and  $-NH_2-$ ; and

5                    wherein the compound includes at least one  $R^4$  group that is a carbohydrate or a derivative such as one selected from the group comprising glyceric aldehyde, glycerose, erythrose, threose, ribose, arabinose, xylose, lyxose, altrose, allose, gulose, mannose, glucose, idose, galactose, talose, rhamnose, dihydroxyactone, erythrulose,  
10                    ribulose, xylulose, psicose, fructose, sorbose, tagatose, and other hexoses, heptoses, octoses, nanoses, decoses, deoxysugars with branched chains, (e.g. apiose, hamamelose, streptose, cordycepose, mycarose and cladinoses), compounds wherein the aldehyde, ketone or hydroxyl groups have been substituted (e.g. N-acetyl, acetyl, methyl, replacement of  $CH_2OH$ ), sugar alcohols,  
15                    sugar acids, benzimidazoles, the enol salts of the carbohydrates, saccharinic acids, sugar phosphates;

as an IL-6 antagonist.

- 20                    2. A method for screening for IL-6 agonists or antagonists comprising the steps of contacting a glycoalkaloid composition containing at least one Z Glycoalkaloid with an IL-6 producing cell in the presence of a candidate agonist or antagonist and assessing IL-6 levels.
3. A method according to claim 2 wherein the Z Glycoalkaloid or the IL-6 receptor is labelled.
- 25                    4. A method of reducing IL-6 production comprising contacting an IL-6 producing cell with an effective amount of a glycoalkaloid composition containing at least one Z Glycoalkaloid.

5. A method of disrupting the binding of IL-6 to its receptor comprising contacting the receptor or IL-6 with an effective amount of a glycoalkaloid composition containing at least one Z Glycoalkaloid.
6. A method of reducing the proliferation of IL-6 producing cells comprising contacting said cells with an effective amount of a glycoalkaloid composition containing at least one Z Glycoalkaloid.
7. A method according to any one of claims 4 to 6 wherein the glycoalkaloid composition is essentially without free sugars of the type that inhibit the IL-6 related activity of the glycoalkaloids therein.
8. A method according to any one of claims 4 to 6 wherein the Z Glycoalkaloids triglycoside glycoalkaloids, solasodine glycosides or are selected from the group of glycoalkaloids consisting of: solamargine, solasonine, solanine, tomatine, solanocapsine and 26-aminofurostane.
9. A method according to any one of claims 4 to 6 wherein the glycoalkaloid composition comprises two Z Glycoalkaloids.
10. A method according to claim 9 wherein the ratio of the Z Glycoalkaloids is between about 6:1 and 1:6.
11. A method according to claim 9 wherein the ratio of the Z Glycoalkaloids is about 1:1.
12. A method according to claim 9 wherein the Z Glycoalkaloids are solamargine and solasonine in a 1:1 ratio and the solamargine and solasonine are essentially free of (i) mono and diglycosides.
13. A method according to claim 12 wherein the solamargine and solasonine are also essentially free of (i) free sugars such as mono, di, tri, oligo or polysaccharides and (ii) aglycone.

14. A method according to claim 4 wherein the Z Glycoalkaloids are chiral, stereoisomers and mixtures thereof including enantiomers and/or diastereoisomers.
15. A method according to claim 4 wherein the Z Glycoalkaloids are isolated from natural sources.
16. A method according to any one of claims 4 to 6 wherein the Z Glycoalkaloids are triglycoside alkaloids and constitute greater than 70%-90% of the glycosides in the composition.
17. A method according to any one of claims 4 to 6 wherein the Z Glycoalkaloids are triglycoside alkaloids and constitute 91-95% of the glycosides in the composition.
18. A method according to any one of claims 4 to 6 wherein the Z Glycoalkaloids are triglycoside alkaloids and constitute 96-100% of the glycosides in the composition.
19. A method according to any one of claims 4 to 6 wherein the glycoalkaloid composition is BEC.
20. The use of a glycoalkaloid composition containing at least one Z Glycoalkaloid to treat an IL-6 related disease.
21. The use according to claim 20 wherein the IL-6 related disease is selected from the group comprising: inflammatory diseases such as rheumatoid arthritis; microbial diseases such as HIV, chronic fatigue syndrome and malaria; heart disease such as cardiac myopathy and cardiac disease progression; and other diseases such as Alzheimer's disease, arteriosclerosis, thyroiditis, Castleman's disease, paraneoplastic symptoms associated with cardiac myxoma, sepsis, psoriasis, diabetes, amyloidosis, hyperlipidemia, polycythemia vera, thrombocythemia and myocardial infarction.

22. The use according to claim 20 wherein the glycoalkaloid composition is administered in combination with or as an adjunct to another agent for treating the IL-6 related disease.
23. A method of modulating bone metabolism comprising contacting an osteoblast  
5 with an effective amount of a glycoalkaloid composition containing at least one Z Glycoalkaloid
24. A method according to claim 23 wherein the glycoalkaloid composition induces osteoclastogenesis and/or osteoclast activity.
25. A method of treating a bone related disease or disorder comprising  
10 administering an effective amount of a glycoalkaloid composition containing at least one Z Glycoalkaloid to a subject in need thereof.
26. A method according to claim 25 wherein the bone related disease or disorder is osteoporosis or osteoarthritis.
27. Use of a glycoalkaloid composition containing at least one Z Glycoalkaloid to  
15 modulate or otherwise affect B cell differentiation, proliferation of thymic and peripheral T cells, induction of T cell differentiation to cytolytic T cells, natural killer cell activation.
28. A method of reducing the proliferation of cancer cells comprising contacting the cancer cell with an effective amount of a glycoalkaloid composition  
20 containing at least one Z Glycoalkaloid
29. A method of reducing tumour cell aggressiveness, metastasis, invasiveness, tumour angiogenesis comprising contacting the cancer with an effective amount of a glycoalkaloid composition containing at least one Z Glycoalkaloid.
30. A method of reducing tumour growth comprising contacting the tumour with an  
25 effective amount of a glycoalkaloid composition containing at least one Z Glycoalkaloid.

31. Use of a glycoalkaloid composition containing at least one Z Glycoalkaloid to modulate or otherwise affect one or more of skin proliferation, megakaryocytopoiesis, macrophage differentiation, neural cell differentiation and proliferation, cachexia, endometriosis, menses or spermatogenesis.
- 5 32. A method for reducing cell viability comprising the step of contacting said cell with an effective amount of a glycoalkaloid composition.
33. A method according to claim 32 wherein the cell is and IL-6 secreting cell or a cell that is activated by IL-6.
34. A method according to claim 32 wherein the cell is diseased or otherwise  
10 undesirable.
35. A method according to claim 32 wherein cell viability is reduced by killing the cell.
36. A method according to claim 32 wherein cell viability is reduced by retarding cell proliferation.
- 15 37. A glycoalkaloid composition comprising at least one Z Glycoalkaloid and a cell targeting agent that delivers the glycoalkaloid to a predetermined cell or cell type.
38. A method of killing a cell in a cell population in a targeted manner comprising contacting said population with a glycoalkaloid composition comprising at least  
20 on Z Glycoalkaloid and a cell targeting agent adapted to deliver the glycoalkaloid to the target cell.